Appendix A

Emission Data

T2-040020
US Ecology Idaho, Inc.
Grand View, ID

US ECOLOGY POTENTIAL TO EMIT

Emission point or description	Contributing processes	Emission rate (T/yr)			
		PM_{10}	Metals	Lead	TAP/HAP
I. CONTAINMENT AND STABILIZATION BUILDING	**I. BLDG TOTAL:**	0.8694	2.1299	0.1842	0.0005
A. Containment (debris handling)	**A. Containment subtotal:**	0.1422	0.6438	0.0557	0.0001
1. Stack emissions	**1. Stack emissions total:**	0.0471	0.2082	0.0180	0.0000
Sort floor stack	Sorting	0.0012	0.0057	0.0005	0.0000
Crushing stack	Crushing & crushings screening	0.0416	0.1830	0.0158	0.0000
Building ventilation stack	Sorting, crushing, screening, waste transfer	0.0043	0.0196	0.0017	0.0000
2. Fugitive emissions					
Fugitive emissions	All containment processes	0.0952	0.4356	0.0377	0.0001
B. Indoor stabilization	**B. Indoor stabilization subtotal:**	0.7271	1.4861	0.1285	0.0003
1. Stack emissions					
Baghouse/HEPA stack	Waste handling & loadout, additive loading	0.0022	0.0044	0.0004	0.0000
2. Fugitive emissions					
Building fugitives	All stabilization processes	0.7250	1.4816	0.1281	0.0003
II. OUTDOOR STABILIZATION PROCESS	**II. PROCESS TOTAL:**	1.9376	2.4199	0.2093	0.0005
Mix bins	Waste transfer, additive loading, weighing	1.9376	2.4199	0.2093	0.0005
III. SILO FILLING/LOADING	**III. SILO TOTAL:**	4.3942	0.0000	0.0000	8.6466
1. Stack emissions					
Indoor stabilization silo		0.3225	0.0000	0.0000	0.6346
Outdoor stabilization silo		0.3378	0.0000	0.0000	0.6646
2. Fugitive emissions					
All silos fugitives		3.7340	0.0000	0.0000	7.3475
IV. FACILITY TOTAL	**IV. FACILITY TOTAL:**	7.20	4.55	0.39	8.65
Total point/stack emissions		0.71	0.21	0.02	1.30
Total fugitive emissions		6.49	4.34	0.38	7.35

Notes:

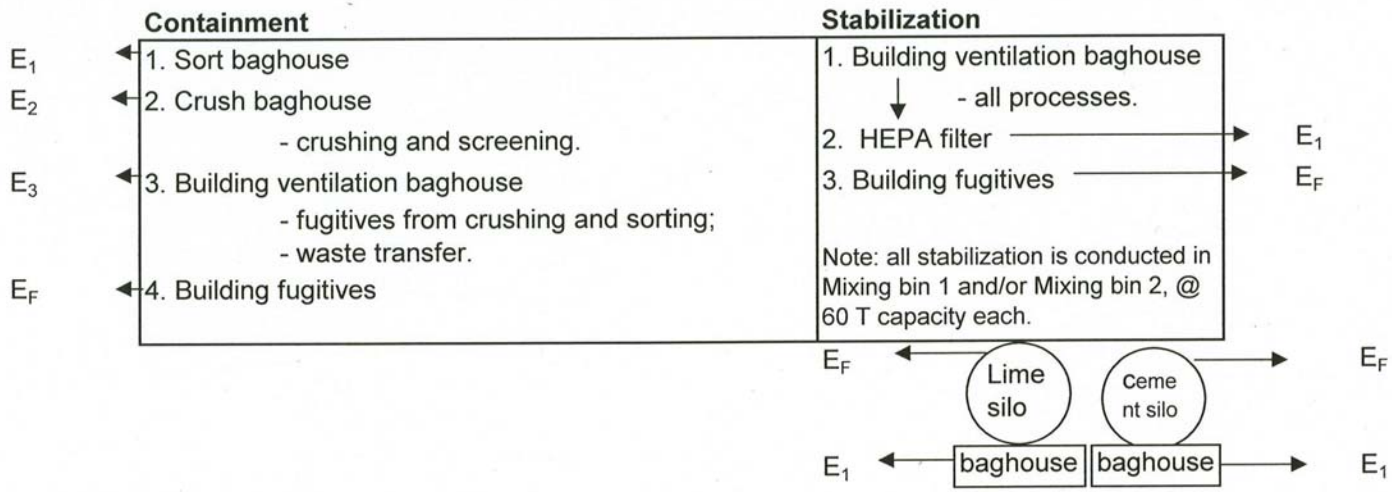
TAP/HAP totals for silo filling represent 100% of emitted PM as Portland cement. Lime, the other silo TAP, would total 58.5% of the Portland cement totals, or 5.06 T/yr silo total (the lime is 58.8% CaO).

1. Metals weight fraction, as determined for the analysis, do not sum to 100%. The worse case weight percents represent a variety of materials and the highest sampled metals weight fraction. For this reason, the total metals emitted are calculated at a higher emission rate than the PM total.

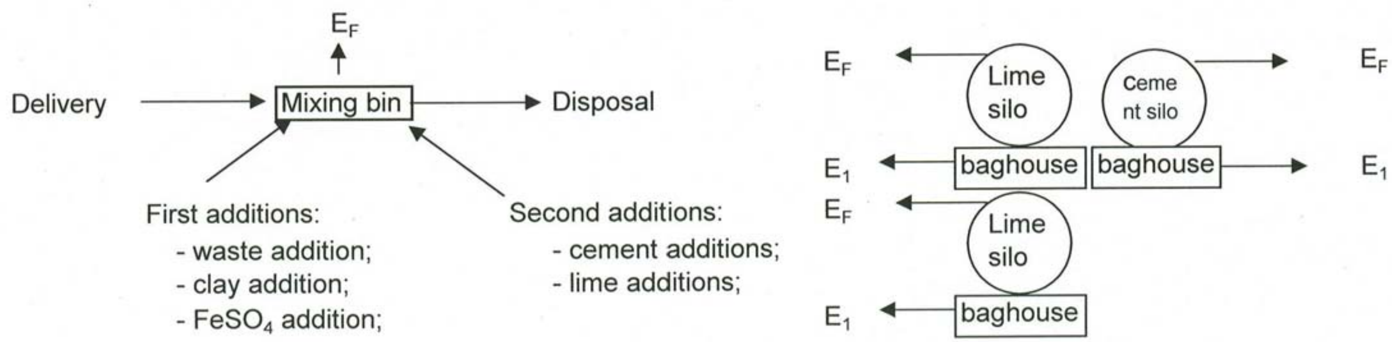
FACILITY EMISSION POINTS

E_i = point or stack emissions E_F = fugitive emissions

I. Containment and Stabilization building



II. Outdoor Stabilization Facility



Appendix B

Modeling Review

T2-040020
US Ecology Idaho, Inc.
Grand View, ID

MEMORANDUM

DATE: 12/20/04

TO: Charlie Mazzone, Air Quality Division

THROUGH: Kevin Schilling, Air Quality Division

FROM: Dustin Holloway, Air Quality Division

PROJECT NUMBER: T2-040020

SUBJECT: Modeling Review for the US Ecology facility near Grandview, Facility ID No-073-00004

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1. SUMMARY

Washington Group International (WGI) conducted a full impact analysis for PM_{10} and lead emissions from the US Ecology of Idaho, Inc. (US Ecology) facility located near Grandview in support of a Tier II operating permit. The results of the analysis demonstrate, to DEQ's satisfaction, that the facility will not cause or contribute to a violation of any ambient air quality standards.

2. BACKGROUND INFORMATION

2.1 *Applicable Air Quality Impact Limits*

US Ecology is located near Grandview in Owyhee county. Owyhee county is designated unclassifiable for all criteria air pollutants. The following table summarizes the applicable air quality standards for this area.

Table 2.1 APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Contribution Levels ($\mu g/m^3$)[a, b]	Regulatory Limit ($\mu g/m^3$)[c]	Modeled Value Used[d]
PM_{10}[e]	Annual	1	50[f]	Maximum 1st highest[g]
	24-hour	5	150[h]	Maximum 6th highest[i] Highest 2nd highest[j]
Lead	Quarterly	NA	1.5[k]	

[a] IDAPA 58.01.01.006.93
[b] Micrograms per cubic meter
[c] IDAPA 58.01.01.577 for criteria pollutants, IDAPA 58.01.01.585 for non-carcinogenic toxic air pollutants IDAPA 58.01.01.586 for carcinogenic toxic air pollutants.
[d] The maximum 1st highest modeled value is always used for significant impact analysis and for all toxic air pollutants.
[e] Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[f] Never expected to be exceeded in any calendar year.
[g] Concentration at any modeled receptor.
[h] Never expected to be exceeded more than once in any calendar year.
[i] Concentration at any modeled receptor when using five years of meteorological data.
[j] The highest 2nd high is considered to be conservative for five years of meteorological data.
[k] Not be exceeded in any quarter of any calendar year.

2.2 Background Concentrations

This modeling analysis uses the default background concentrations for small town/suburban areas in DEQ's background concentration data.[1] The following table summarizes the applicable background concentrations for this area.

Table 2.2 BACKGROUND CONCENTRATIONS.		
Pollutant	**Averaging Period**	**Background concentrations ($\mu g/m^3$)[a]**
PM_{10}	24-hour	73.0
	Annual	26.0
Lead	quarterly	0.03
a. Micrograms per cubic meter.		

3. ASSESSMENT OF SUBMITTED, CERTIFIED MODELING ANALYSIS

3.1 Modeling Methodology

Washington Group International (WGI) conducted a full impact analysis for PM_{10} and lead in addition to a toxic pollutant analysis. DEQ did not review the toxic pollutant analysis because the provisions of IDAPA 58.01.01.210 and IDAPA 58.01.01.585-586 do not apply to Tier II Operating Permits.

Table 3.1 MODELING PARAMETERS.		
Parameter	**What Facility Submitted**	**DEQ's Review/Determination**
Modeling protocol	No protocol was submitted	Although no protocol was submitted, the analysis adhered to established rules and guidelines.
Model Selection	ISCST3 version 02035	This model is the recommended model
Meteorological Data	Boise airport 1987-1991	This is the most representative data available for this area.
Model Options	Regulatory Defaults	Appropriate for this situation.
Land Use	Rural classification	Rural is the correct land use classification for this sparsely populated area.
Complex Terrain	Simple and complex terrain were analyzed.	There are some elevated receptors near the facility. These were accounted for.
Building Downwash	Downwash was included	ISCST3 accounts for downwash caused by nearby structures. However, ISCST3 does not calculate cavity concentrations. The sources and buildings at this facility are far enough away from the fenceline that the cavity regions do not affect ambient air.
Receptor Network	50 meter spacing along the fenceline; 50 meter spacing out to 200 meters; 100 meter spacing out to 500 meters; 200 meter spacing out to 1,000 meters; 500 meter spacing out to 5,000 meters	The receptor grid is sufficient for this analysis. If the ambient concentrations were close to the applicable standards, DEQ would recommend a finer grid spacing in the area of the maximum concentration. However, the estimated concentrations from this facility are far below any standards.
Facility Layout	N/A	The facility layout included the buildings identified on the plot plan which could affect pollution dispersion from the sources at the facility.

1 Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

3.2 Emission Rates

The following table summarizes the emissions rates included in the modeling analysis.

Table 3.2 EMISSION RATES			
Emission Release Point	Source Description	PM_{10} Emission Rate (lb/hr)	Lead Emission Rate (lb/hr)
Sort	Sort Floor Baghouse	2.72E-04	1.12E-04
Crush	Crusher Baghouse	9.50E-03	3.61E-03
General	General Building Ventilation Baghouse	9.78E-04	3.89E-04
Stab	Stabilization Baghouse	1.65E-04	2.91E-05
A_Silo	Additive Silo	7.36E-02	N/A
L_Silo	Lime Silo	7.36E-02	N/A
OSA	Stabilization Facility Additives	4.65E-01	N/A
O_Silo	Stabilization Facility Silos	1.45E-01	N/A
OSW	Outdoor Stabilization Facility Waste Addition	1.32E-01	4.78E-02

3.3 Emission Release Parameters

Table 3.3 EMISSION RELEASE PARAMETERS							
Emission Release Point	Easting (m)	Northing (m)	Elevation (m)	Stack Height (ft)	Temperature (°F)	Exit Velocity (m/s)	Stack Diameter (ft)
PM_{10} and Lead Point Sources							
Sort	560,048	4,768,038	785.3	80	68	17.288	3.67
Crush	560,051	4,768,038	785.3	80	68	22.683	2.67
General	560,050	4,768,038	785.3	80	68	16.091	3.17
Stab	560,035	4,768,030	785.8	100	68	20.213	4.0
PM_{10} Point Sources							
A_SILO	559,998	4,768,017	787	60	68	0.002	2.76
L_SILO	559,998	4,768,012	787.1	60	68	0.002	2.76
OSA	559,977	4,768,152	783.9	40	68	0.002	2.76
O_SILO	559,977	4,768,152	783.9	40	68	0.002	2.76
PM_{10} and Lead Volume Sources							
	Easting (m)	**Northing (m)**	**Elevation (m)**	**Release Height (m)**	**Horizontal Dimension (m)**	**Vertical Dimension (m)**	
OSW	559,977	4,768,135	784.1	3.05	1.52	4.57	

For horizontal or capped stacks, the exit velocity should be set to 0.001 meters per second. The applicant used 0.002 meters per second (m/s). However, since the estimated concentrations are well below the standards, DEQ determined that 0.002 m/s was sufficient for this analysis.

3.4 Results of Full Impact Analysis

Table 3.4 FULL IMPACT ANALYSIS RESULTS						
Pollutant	Averaging Period	Facility Ambient Impact (μg/m³)	Background Concentration (μg/m³)	Total Ambient concentration (μg/m³)	NAAQS (μg/m³)	Percent of NAAQS
PM_{10}	24-HR	6.12[a]	73.0	79.12	150	53%
	Annual	1.10[b]	26.0	27.10	50	54%
Lead	Month	0.37[c]	0.03	0.40	1.5[c]	27%

[a] 6th highest modeled concentration out of five years of meteorological data.
[b] Highest modeled annual concentration out of five years of meteorological data.
[c] The NAAQS standard for lead is based on a quarterly average. The ISCPrime output is a monthly average. This is more conservative than the quarterly standard.

The results of the analysis demonstrate, to DEQ's satisfaction, that the US Ecology facility will not cause or significantly contribute to a violation of any ambient air quality standards.

Appendix C

AIRS Information

T2-040020
US Ecology Idaho, Inc.
Grand View, ID

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Facility Name: US Ecology Idaho, Inc.
Facility Location: Grand View
AIRS Number: 073-00004

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							U
NO_x	B							U
CO	B							U
PM_{10}	B							U
PT (Particulate)	B							U
VOC	B							U
THAP (Total HAPs)	B							U
			APPLICABLE SUBPART					

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, **or** each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

Appendix D

Throughput Limitation Summary

T2-040020
US Ecology Idaho, Inc.
Grand View, ID

PROCESS THROUGHPUT LIMITS SUMMARY

Process	Contributing Processes	Maximum Equipment Capacity	Throughput Limit
I. CONTAINMENT AND STABILIZATION BUILDING			
A. Containment (debris handling)			
	Sorting	100 T/hr	876,000 T/yr
	Crushing & crushings screening	50 T/hr	438,000 T/yr
B. Indoor stabilization			
	Waste stabilization	300 T/hr	2,628,000 T/yr
II. OUTDOOR STABILIZATION PROCESS			
	Waste stabilization	270 T/hr	2,365,200 T/yr
III. SILO FILLING/LOADING	**ALL SILOS TOTAL:**	**100 T/hr**	**876,000 T/yr**
	Indoor stabilization silos total	50 T/hr	438,000 T/yr
	Outdoor stabilization silos total	50 T/hr	438,000 T/yr

Appendix E

Allowable Contaminant Concentrations

T2-040020
US Ecology Idaho, Inc.
Grand View, ID

Compound	CAS #	Concentration mg/kg
2-Chloro-1,3-butadiene	126-99-8	500
1,2-Dibromo-3-chloropropane	96-12-8	500
1,2-Dichlorobenzene	95-50-1	500
1,4-Dichlorobenzene	106-46-7	500
1,1-Dichloroethylene	75-35-4	500
1,2-Dichloroethane	107-06-2	500
1,1-Dichloroethane	75-34-3	500
2,4-D (Dichlorophenoxyacetic Acid)	94-75-7	500
1,4-Dinitrobenzene	528-29-0	500
	99-65-0	-
	100-25-4	-
1,4-Dioxane	123-91-1	500
1,2-Diphenylhydrazlne	122-66-7	500
4,4-Methylene bis(2-chloroaniline)	101-14-4	500
2,3,7,8-Tetrachlorodibenzo-p-dioxin *	1746-01-6	0.02
1,2,4-Trichlorobenzene	120-82-1	500
1,1,1-Trichloroethane	71-55-6	500
1,1,2-Trichloroethane	79-00-5	500
2,4,5-Trichlorophenol	95-95-4	500
2,4,6-Trichlorophenol	88-06-2	500
1,2,3-Trichloropropane	96-18-4	500
1,2,4-Trimethylbenzene	95-63-6	500
	25551-13-7	-
Acetone	67-64-1	500
Acetonitrile	75-05-8	500
Acrolein	107-02-8	500
Acrylamide	79-06-1	500
Aniline	62-53-3	500
Aramite	140-57-8	500
Aroclor (all PCBs)	1336-36-3	500
Benomyl	17804-35-2	500
Benzene	71-43-2	500
Bis (2-chloroethyl) ether	111-44-4	500
Bromoform	75-25-2	500
Captan	133-06-2	500
Carbaryl	63-25-2	500
Carbofuran	1563-66-2	500
Carbon Disulfide	75-15-0	500
Carbon Tetrachloride	56-23-5	500
Chlordane	57-74-9	500
Chlorobenzene	108-90-7	500
Chlorobenzilate	510-15-6	500
Chloroform	67-66-3	500
Chloromethane	74-87-3	500
Creosol	1319-77-3	500
Creosote	8001-58-9	500
Cyclohexanone	108-94-1	500
DDT	50-29-3	500
DEHP (Di(2-Ethylhexyl) Phthalate)	117-81-7	500
Diazinon	333-41-5	500
Dibutyl Phthalate	84-74-2	500
Dichloromethane	75-09-2	500
Dieldrin	60-57-1	500
Diethanolamine	111-42-2	500
Diethyl phthalate	84-66-2	500

Compound	CAS #	Concentration mg/kg
Dimethyl aminoazo-benzene	60-11-7	500
Dinitro-o-cresol	534-52-1	500
Dioxin and furans *	NA	500
Diphenylamine	122-39-4	500
Endosulfan	115-29-7	500
Endrin	72-20-8	500
Epichlorohydrin	106-89-8	500
Ethyl acetate	141-78-6	500
Ethyl ether	60-29-7	500
Ethylbenzene	100-41-4	500
Ethylene Glycol	107-21-1	500
Formaldehyde	50-00-0	500
Heptachlor	76-44-8	500
Heptachlor epoxide	1024-57-3	500
Hexachlorobenzene	118-74-1	500
Hexachlorobutadiene	87-68-3	500
Hexachlorocyclopentadiene	77-47-4	500
Hexachloroethane	67-72-1	500
Isobutyl alcohol	78-83-1	500
Isopropyl Alcohol	67-63-0	500
Lindane	58-89-9	500
Malathion	121-75-5	500
Methanol	67-56-1	500
Methoxychlor	72-43-5	500
Methyl Ethyl Ketone	78-93-3	500
Methyl Isobutyl Ketone	108-10-1	500
Methyl methacrylate	80-62-6	500
Methyl parathion	298-00-0	500
Methylacrylonitrile	126-98-7	500
Naphthalene	91-20-3	500
n-Butyl Alcohol	71-36-3	500
n-Dioctyl phthalate	117-84-0	500
p-Nitroaniline	100-01-6	500
Nitrobenzene	98-95-3	500
n-Nitrosodi-n-butylamine	924-16-3	500
n-Nitrosodiethylamine	55-18-5	500
n-Nitrosodimethylamine	62-75-9	500
Parathion	56-38-2	500
Pentachloronitrobenzene	82-68-8	500
Pentachlorophenol	87-76-5	500
Phenol	108-95-2	500
Phorate	298-02-2	500
Phthalic anhydride	85-44-9	500
Picloram	1918-02-1	500
Polycylic Organic Matter **	NA	500
Promanide	23950-58-5	500
Sec-Butyl Alcohol	78-92-2	500
Styrene	100-42-5	500
Tetrachloroethylene	27-18-4	500
Thiram	137-26-8	500
Toluene	108-88-3	500
Toluene Diisocyanate	26471-62-5	500
Toxaphene	8001-35-2	500
Trichloroethylene	79-01-6	500
Triethylamine	121-44-8	500
Trifluralin	1582-09-8	500
Trimethyl benzene	25551-13-7	500
Vinyl Acetate	108-05-4	500
Vinyl Chloride	75-01-4	500
Xylene (o,m,p isomers)	1330-20-7	500
Total Volatile Organic Compounds	NA	500

TAP	CAS #	Substance Concentration Weight Fraction
Aluminum	7429-90-5	0.27
Antimony	7440-36-0	0.13
Arsenic	7440-38-2	0.0097
Asbestos	1332-21-4	1.00E-08
Barium	7440-39-3	0.13
Beryllium	7440-41-7	8.00E-05
Cadmium	7440-43-9	0.023
Chromium	7440-47-3	0.13
Copper	7440-50-8	0.27
Cyanides	592-01-8	0.27
Lead	7440-47-3	0.195
Manganese	7439-96-5	0.27
Mercury	7439-97-6	0.004
Nickel	7439-92-1	0.175
Selenium	7782-49-2	0.05
Silver	7440-22-4	0.004
Thallium	7440-28-0	0.028
Vanadium	1314-62-1	0.012
Zinc	7440-66-6	0.284